SNC2D Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Unit 3 Review – Tissues, Organs, and Systems of Living Things**

**Chapter 1 – Cells and More Cells**

*I know how to use & distinguish between the following terms:*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| cell | microscopy | nucleus | organelle | micrograph |
| cytoplasm | chromosomes | DNA | genes | DNA screening |
| transgenic organisms | | cloning | mutation | mutagens |
| cell division | mitosis | cytokinesis | DNA replication | prophase |
| metaphase | anaphase | telophase | cell plate | cell cycle |
| interphase | cell cycle checkpoints | | tumour | cancer |

*I know how to…*

\_\_ describe how images are produced & relative magnification of brightfield/darkfield, fluorescence,

transmission electron, scanning electron, and phase-contrast microscopes [See Fig.1.2, p.8-9]

\_\_ use a light microscope [See Science Skills Toolkit 8, p.546-547]

\_\_ draw a labelled biological diagram of a specimen [See Science Skills Toolkit 6, p.543-544]

\_\_ (HMST only) to calculate field diameter, and estimate size of a specimen under any magnification

\_\_ describe the functions of the following cell organelles/structures & identify differences in cell

structure between animal cells and plant cells [See Figure 1.5 & Figure 1.6, p.12-13]:

-nucleus, nuclear membrane, cytoplasm, cell membrane, cytoplasm, mitochondria, ribosomes,

endoplasmic reticulum, vesicles, Golgi body, nucleus, vacuoles, cytoskeleton, cell wall,

chloroplasts

\_\_ state the 3 main ideas of the cell theory

\_\_ give examples & identify benefits & ethical issues of: DNA screening, transgenic organisms,

cloning, gene therapy

\_\_ describe the importance of DNA replication

\_\_ describe the main events during each stage of mitosis, using proper terminology [See Fig.1.25,

p.34-35] & identify the stage of mitosis from diagrams or micrographs

\_\_ distinguish between cytokinesis in animal and plant cells

\_\_ describe what processes occur during interphase and the importance of cell cycle checkpoints

\_\_ compare average life span of various human body cells [See Table 1.3]

\_\_ describe what changes occur in the cell cycle when cells become cancerous

\_\_ give examples of at least 3 mutagens

**Chapter 2 – Plants: From Cells to Systems**

*I know how to use & distinguish between the following terms:*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| cell specialization | | cell differentiation | | tissues |
| organs | meristematic cells | | dermal tissue | ground tissue |
| vascular tissue | transpiration | organ systems | root system | shoot system |

*I know how to…*

\_\_ identify the function and location (including terminal bud & apical buds) of meristematic cells in

plants

\_\_ identify the 3 types of plant tissues & their functions

\_\_ identify the structures in the cross-section of a leaf & their main function [See Fig.2.7, p.60]

\_\_ describe the functions of the 4 types of plant organs: leaves, stems, roots, flowers

\_\_ distinguish between taproots & fibrous roots and give examples

\_\_ contrast the functions of xylem and phloem & describe how substances are moved in both

**Chapter 3 – Animals: From Cells to Systems**

*I know how to use & distinguish between the following terms:*

|  |  |  |  |
| --- | --- | --- | --- |
| stem cells | embryonic stem cells | | medical imaging technologies |
| public health strategy | | vaccination | cancer screening |

*I know how to…*

\_\_ identify the 4 main animal tissues & give examples of each [See Table 3.1, p.88-89]

\_\_ distinguish between totipotent & pluripotent stem cells

\_\_ give examples & identify benefits & ethical issues of: stem cell research

\_\_ describe how images are generated using X rays, CAT/CT scans, ultrasounds, MRI scans

\_\_ describe applications of endoscopy

\_\_ identify the main functions of the human organ systems [See Fig.3.13, p.96] & give examples

of how they interact to perform vital functions

\_\_ identify the main structures in the digestive system & their functions [See Fig.3.14A, p.97]

\_\_ identify the 4 chambers of, as well as the major blood vessels entering and exiting the heart

[See Fig.3.20A, p.100]

\_\_ describe the movement of oxygenated & deoxygenated blood in the heart [See Fig.3.20B, p.100]

\_\_ compare the number of chambers in the heart of a fish, an amphibian, and a mammal

\_\_ describe the function of capillaries in the digestive system and respiratory systems

\_\_ describe the function of red blood cells

\_\_ identify the main structures in the respiratory system & their functions [See Fig.3.25, p.103]

\_\_ describe the following public health strategies & their benefits: vaccinations, cancer screening &

cancer prevention programs

\_\_ identify major internal organs in the abdominal & chest cavity of the frog

[See Activity 3 in the Frog Dissection Pre-Lab]